

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An RF antenna array comprising:

a plurality of small antenna elements spatially distributed over an array aperture; at least some plurality of said antenna elements each including (a) at least one active component and (b) at least one reactively-controlled parasitic component co-located with said active component within an antenna element radiating aperture having a largest dimension of about one-half wavelength at the lowest frequency of its operational bandwidth, and (c) at least one controllably variable reactance load connected to said at least one parasitic component; and an array controller connected to control at least said variable reactance loads thereby to control, at least in part, a predetermined characteristic of said array.

2. (Previously Presented) An array as in claim 1 wherein said array controller is also connected to control RF signals being fed to/from said active components thereby to control, at least in part, a predetermined characteristic of said array.

3. (Currently Amended) A method for controlling at least one predetermined characteristic of an RF antenna array, said method comprising:

arranging a plurality of small antenna elements spatially distributed over an array aperture; including in each of at least some plurality of said antenna elements (a) at least one active component and (b) at least one reactively-controlled parasitic component co-located with said active component within an antenna element radiating aperture having a largest dimension of

about one-half wavelength at the lowest frequency of its operational bandwidth, and (c) at least one controllably variable reactance load connected to said at least one parasitic component; and controlling changes in at least said variable reactance loads thereby to control, at least in part, a predetermined characteristic of said array.

4. (Previously Presented) A method as in claim 3 further comprising:
controlling RF signals being fed to/from said active components thereby to control, at least in part, a predetermined characteristic of said array.

5. (Currently Amended) A method for providing a reconfigurable antenna, said method comprising:

co-locating a reactively-controlled parasitic component within an antenna element radiating aperture having a largest dimension of about one-half wavelength at the lowest frequency of its operational bandwidth of each of plural active small antenna components in a phased array; and

controlling said parasitic components by changing the value of a reactance connected thereto to change operational characteristics of the corresponding co-located active antenna components.

6. (Previously Presented) A method as in claim 5 wherein said parasitic components are controlled by either switching reactive load values in and out that are connected to the parasitic components or by applying control voltages to variable reactance circuits.

7. (Previously Presented) A method as in claim 6 wherein at least some of said variable reactance circuits include a varactor.

8. (Previously Presented) A method as in claim 5 wherein parasitic components are controlled by use of a feedback control subsystem that adjusts RF properties of the parasitic components based on an observed metric.

9. (Previously Presented) A method as in claim 5 wherein the parasitic components are controlled to effect changes in at least one of the group of characteristics consisting of directivity, frequency tuning, instantaneous bandwidth, polarization and radar cross section.

10. (Previously Presented) An array as in claim 1 wherein:
said array controller is configured and connected to independently control different antenna parasitic components.

11. (Previously Presented) A method as in claim 3 wherein:
said controlling step includes independent control of different antenna parasitic components.

12. (Previously Presented) A method as in claim 5 wherein:
said controlling step includes independent control of different antenna parasitic components.

13. (Previously Presented) An array as in claim 1 wherein:
said array controller is configured and connected to control the RF/electrical properties of the parasitic components as well as the phase of associated antenna active components thereby achieving control over at least an array beam pointing angle.

14. (Previously Presented) A method as in claim 3 wherein:

said controlling step includes controlling the RF/electrical properties of parasitic components as well as the phase of associated antenna active components thereby achieving control over at least an array beam pointing angle.

15. (Previously Presented) A method as in claim 5 wherein:

said controlling step includes controlling the RF/electrical properties of the at least one parasitic components as well as the phase of associated antenna active components thereby achieving control over at least an array beam pointing angle.

16. (Previously Presented) An array as in claim 1 wherein:

said array controller includes a digital beamformer circuit from which information is extracted to at least assist in control of said parasitic components.

17. (Previously Presented) An array as in claim 16 wherein:

said digital beamformer circuit also provides phase control for said antenna active components.

18. (Previously Presented) A method as in claim 3 wherein:

said controlling step includes at least some digital beamformer control of said parasitic components.

19. (Previously Presented) A method as in claim 18 wherein:

said controlling step also includes at least some digital beamformer control of the phase of said antenna active components.

20. (Previously Presented) A method as in claim 5 wherein:

said controlling step includes at least some digital beamformer control of said parasitic components.

21. (Previously Presented) A method as in claim 20 wherein:
said controlling step also includes at least some digital beamformer control of the phase
of antenna active components.
22. (Previously Presented) An RF antenna array as in claim 1 wherein sub-sets of
said antenna elements are connected for common control and thus form respective sub-arrays.
23. (Previously Presented) A method as in claim 3 wherein sub-sets of said antenna
elements are connected for common control and thus form respective sub-arrays.